

**Amendments to the Claims:**

Please amend claims 74-75, 78-80 and add new claims 110-119. This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-73 (canceled)

1           74. (currently amended): A probe for laser desorption/ionization mass  
2 spectrometry, wherein the probe comprises a sample presenting surface and ~~a moiety that binds~~  
3 ~~to biotin~~ an avidin moiety immobilized by chemical bonding to the sample presenting surface,  
4 wherein the moiety on the sample presenting surface is bound to the biotin group of at least one  
5 biotinylated protein, and wherein the probe further comprises a matrix.

1           75. (currently amended): The probe of claim 74, wherein the avidin moiety binds  
2 biotin with an affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

76-77 (canceled)

1           78. (currently amended): The probe of claim 74, wherein the sample presenting  
2 surface comprises two or more avidin moieties that bind to biotin arranged in a predetermined  
3 array.

1           79. (currently amended): The probe of claim 74, wherein the avidin moiety that  
2 binds to biotin is selected from the group consisting of is streptavidin and avidin.

1           80. (currently amended): The probe of claim 74, wherein the avidin moiety is  
2 covalently bonded to the sample presenting surface.

1                   81. (previously presented): A method comprising the steps of:

- 2                   a) providing a probe comprising a sample presenting surface and a moiety that  
3 binds to biotin immobilized by chemical bonding to the sample presenting surface;  
4                   b) contacting the probe with at least one biotinylated protein under conditions  
5 allowing the biotin group to bind to the moiety that binds to biotin; and  
6                   c) performing laser desorption/ionization mass spectrometry on the proteins  
7 bound on the surface of the probe.

1                   82. (previously presented): The method of claim 81, further comprising after  
2 step b) the step of:

3                   washing to remove unbound molecules from the probe.

1                   83. (previously presented): The method of claim 81, wherein the moiety binds  
2 biotin with an affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

1                   84. (previously presented): The method of claim 81, wherein the probe  
2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1                   85. (previously presented): The method of any one of claims 81-84, wherein the  
2 moiety is covalently bonded to the sample presenting surface.

1                   86. (previously presented): The method of any one of claims 81-84, further  
2 comprising the step of applying a matrix after allowing the biotin group to bind to the moiety  
3 that binds to biotin.

1                   87. (previously presented): The method of any one of claims 81 or 82, wherein  
2 the moiety that binds to biotin is selected from the group consisting of streptavidin and avidin.

1                   88. (previously presented): The method of claim 87, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

89. (previously presented): The method of claim 87, further comprising the step of applying a matrix after allowing the biotin group to bind to the moiety that binds to biotin.

90. (previously presented): A mass spectrometry apparatus comprising:  
a) a probe comprising a sample presenting surface and a moiety that binds to biotin immobilized by chemical bonding to the sample presenting surface;  
b) an energy source that directs laser energy to the sample presenting surface for desorbing and ionizing a biotinylated protein captured by the moiety; and  
c) a detector that detects the desorbed, ionized biotinylated protein.

91. (previously presented): The apparatus of claim 90, further comprising:  
d) a spectrometer tube into which ionized biotinylated protein is accelerated; and  
e) means for applying an accelerating electrical potential to the desorbed, ionized protein; wherein the mass spectrometer is a time-of-flight mass spectrometer.

92. (previously presented): The apparatus of claim 91, further comprising:  
f) vacuum means for applying a vacuum to the interior of the tube.

93. (previously presented): The apparatus of claim 90, wherein the detector comprises an electron multiplier.

94. (previously presented): The apparatus of claim 90, wherein the moiety binds biotin with an affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

95. (previously presented): The apparatus of claim 90, wherein the moiety on the probe is bound to the biotin group of at least one biotinylated protein.

96. (previously presented): The apparatus of claim 95, wherein the probe further comprises a matrix.

1                    97. (previously presented): The apparatus of claim 90, wherein the probe  
2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1                    98. (previously presented): The apparatus of claim 90, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1                    99. (previously presented): The apparatus of claim 91, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1                    100. (previously presented): The apparatus of claim 92, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1                    101. (previously presented): The apparatus of claim 93, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1                    102. (previously presented): The apparatus of claim 90, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                    103. (previously presented): The apparatus of claim 95, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                    104. (previously presented): The apparatus of claim 96, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                    105. (previously presented): The apparatus of claim 98, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                    106. (previously presented): The apparatus of claim 99, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                    107. (previously presented): The apparatus of claim 100, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1                   108. (previously presented): The apparatus of claim 101, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

3                   109. (previously presented): The apparatus of claim 90, wherein the energy  
4 source is energy from a nitrogen laser or an Nd-YAG laser.

1                   110. (new): A probe for laser desorption/ionization mass spectrometry, wherein  
2 the probe consists essentially of a sample presenting surface and a moiety that binds to biotin  
3 immobilized by chemical bonding to the sample presenting surface, wherein the moiety on the  
4 sample presenting surface is bound to the biotin group of at least one biotinylated protein, and  
5 wherein the probe further comprises a matrix.

1                   111. (new): The probe of claim 110, wherein the moiety binds biotin with an  
2 affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

1                   112. (new): The probe of claim 110, wherein the sample presenting surface  
2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1                   113. (new): The probe of claim 110, wherein the moiety that binds to biotin is  
2 selected from the group consisting of streptavidin and avidin.

1                   114. (new): The probe of claim 110, wherein the moiety is covalently bonded to  
2 the sample presenting surface.

1                   115. (new): A probe for laser desorption/ionization mass spectrometry, wherein  
2 the probe comprises a sample presenting surface and a moiety that binds to biotin immobilized  
3 by chemical bonding directly to the sample presenting surface, wherein the moiety on the sample  
4 presenting surface is bound to the biotin group of at least one biotinylated protein, and wherein  
5 the probe further comprises a matrix.

1                    116. (new): The probe of claim 115, wherein the moiety binds biotin with an  
2    affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

1                    117. (new): The probe of claim 115, wherein the sample presenting surface  
2    comprises two or more moieties that bind to biotin arranged in a predetermined array.

1                    118. (new): The probe of claim 115, wherein the moiety that binds to biotin is  
2    selected from the group consisting of streptavidin and avidin.

1                    119. (new): The probe of claim 115, wherein the moiety is covalently bonded to  
2    the sample presenting surface.